



# Centerline

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## Viewpoint: Ecosystem Enhancement Program

By: Roger E. Sheats, Jr., Deputy Secretary  
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Struggling through the sometimes-murky quagmire of environmental stewardship and regulatory requirements, a team



of once-thought unlikely cohorts birthed an experiment that has since drawn national attention and has received a national award for innovation.

Are you at least a tad curious?  
Read on. Drift back with me to early summer of 2001.

A staff team was assembled during June 2001 from the NC Department of Transportation, the NC Department of Environment and Natural Resources, the US Army Corps of Engineers, and other State and Federal partner agencies. This group had accepted the challenge of addressing the matter of Permit Process Improvement. Hardly into the arduous task of dismantling the current environmental permitting process into its seemingly infinitesimal number of tasks, the group realized that the single biggest question on the table revolved around the topic of mitigation. The issue of mitigation for environmental impact by NCDOT was extracted from the group's mission for the week and set aside for a separate week of its own intensive scrutiny that was set for September 2001.

Once again, in the Fall of 2001, a team similar to the one that assembled earlier in June began its awesome quest of restructuring and (hopefully) simplifying the environmental impact mitigation process for North Carolina. After a gut wrenching process that nearly broke down midway through the week of intensive exchange, debate, and compromise, the dust began to settle and the **Ecosystem Enhancement Program** lay

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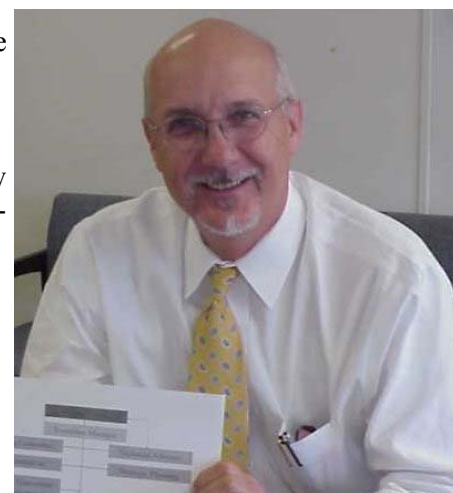
## Gilmore Assumes New Managerial Role

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William D. Gilmore, PE, has been selected to lead and manage the newly created Ecosystem Enhancement Program (EEP). In making the announcement to Assistant Managers and PDEA staff, Roger Sheats, Deputy Secretary for Environment, Planning and Local Government Affairs, stated "we have selected the right person to lead this program." With his new responsibilities, Bill will be vacating his management position at PDEA.

Bill spent the first 11 years of his career in NCDOT's Roadway Design Branch. Following 16 years in Georgia, South Carolina, Louisiana, Tennessee, and Texas, he returned to North Carolina and served as Vice President and Area Manager of Parsons Brinckerhoff. In 1998 he was named Manager of the PDEA Branch, a position he has held for the last 4 years. As Manager he has worked closely with our staff of the Office of Natural Environment. Notable accomplishments include partnering and relationship building with State and Federal resource agencies. As an example, he was presented the Department of the Army Commander's award for Public Service.

During his tenure, North Carolina has increased its number of funded positions from 14 to 23 positions for outside agency assistance in resource management. Bill has worked with our staff and DOT Personnel to increase both number of staff positions and career opportunities. During the past year he has spent a considerable amount of his time, with other colleagues, to develop a new approach to wetland mitigation in North Carolina. This program known as "EEP" will become his sole responsibility as it continues to develop from a conceptual program to full operation in 2005.



Bill, our staff would like to wish you the best in your new role and to say thank you for the leadership you provided as Manager.

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spread across the wall in its infancy before the beleaguered team. Out of chaos ably facilitated into constructive thought by Julie Hunkins and crew had come a really sound, comprehensive idea, the potential impact of which could only be marginally appreciated, even if completely understood, at that moment.

The Ecosystem Enhancement Program was promoted to the sponsoring agencies (the NC Department of Transportation, the NC Department of Environment and Natural Resources, and the US Army Corps of Engineers) on the last day of the exercise. Conceptually there was concurrence! Let us proceed with the development of the newly-dubbed “EEP” agenda!

The concept for realizing the EEP will involve a joint implementation strategy incorporating a phased approach over thirty-six months leading to an organization that will manage statewide, watershed-based compensatory mitigation. Once the organization design and transition are completed, the organization will be jointly staffed by NCDOT and NCDENR in a manner which will allow simultaneous monitoring and management of on-going mitigation projects. The agenda will include a strong environmental resource preservation component coupled with an aggressive component focused upon restoration of wetlands, streams, and other environmental resources impacted by NCDOT projects. All mitigation resource agents, whether at NCDOT, at NCDENR, or within the private mitigation banker network, will operate on a level playing field to assist NCDOT in meeting our mitigation needs. A number of advisory committees will be utilized by a Steering Group to structure and guide the EEP development and permanent implementation. By January 2005, the EEP will allow the NCDOT to provide for mitigation demands before NCDOT project start dates. We are assertively moving from working behind the mitigation curve to working well in advance of it. A properly implemented EEP means that NCDOT projects will never again be delayed because of mitigation needs.

After endorsement by the sponsors, work began immediately to maintain momentum toward written and resource commitment to the new idea. A Memorandum of Understanding was prepared and has been signed by the NCDOT, NCDENR, and the USACOE. As some of you know, NCDOT Project Development and Environmental Analysis Branch Manager Bill Gilmore was asked to accept the responsibility of Transition Manager for the EEP. The transition should last three years, or less, if possible. Bill has been involved with the development of this concept since its first moments of existence. His depth and breadth of understanding and commitment to the protection of our State’s environmental resource base brought agreement between management at NCDOT and NCDENR that Bill Gilmore was the obvious choice to lead North Carolina through this revolutionary redirection of its environmental impact mitigation program. I take this point of personal privilege to publicly thank Bill Gilmore for his vision and boldness in accepting the challenge. Both Dempsey Benton, Chief Deputy

Secretary for NCDENR, and I have committed our support for Bill as NCDOT, NCDENR, USACOE, and all of our partner agencies push toward success on this mission.

Oh, yes, at the outset of this piece I mentioned that our EEP had received some national recognition. The National Association of Development Organizations Research Foundation awarded the NC Ecosystem Enhancement Program with a 2002 Innovation Award in late June 2002. My congratulations to the all of the agency staff team members, each and every one, who honestly struggled through some tough moments (I saw and heard some of them, when I wasn’t asked to leave. That’s an in-team “ha-ha”). It seems that our NC Mitigation Process Improvement (MPI) Team has come up with something that may benefit other states in our nation.

In closing, I offer to the Mitigation Process Improvement Team, “A job well done!” Thanks to the MPI agency partners, especially the sponsors. Thanks to Julie Hunkins and “her team” for great facilitation and getting the best out of our team. Best wishes to you, Bill, as you lead us! And, lastly, let’s ALL make it happen for “One North Carolina!”

### **The Office of Natural Environment Consultant Contract Selections for 2002-2004**

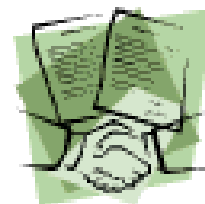
By: Phil Harris, P.E., Permit Tracking Engineer  
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On May 8, 2002, the Office of Natural Environment selected the 2002-2004 “on-call” consultant contracts. There were a total of twenty-eight private consultant firms who expressed interest and submitted proposals. The selection committee that consisted of approximately twelve NCDOT staff, deliberated for several hours before arriving at the selection of fifteen private consultant firms. These fifteen firms will be used as a resource to the Office of Natural Environment and will be responsible for handling natural resource investigations, wetland and stream mitigation planning and design activities, and preparation of permit applications. Of the fifteen firms selected, ten were repeat consultants from the previous two-year contract. The total amount for the 15 “on-call” contracts equals 15.25 million dollars and can be supplemented to increase funding if necessary.

Listed below are the 15 selected consultants for 2002-2004:

ARCADIS Geraghty & Miller  
The Catena Group  
J.H. Carter III & Associates  
ECOScience Corporation  
Environmental Services, Inc.  
Hayes, Seay, Mattern & Mattern, Inc.  
HDR Engineering, Inc. of the Carolinas  
Kimley Horn and Associates  
LandMark Design Group  
Rummel, Klepper & Kahl  
Stantec Consulting Services

Buck Engineering  
EarthTech, Inc.  
KCI Associates  
H. W. Lochner



## **Riparian Buffer Protection Program: Surface Water Identification Training and Certification Program**

By: Matt Haney, Environmental Specialist  
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In mid-March staff members of the Office of Natural Environment attended the Surface Water Identification Training and Certification (SWITC) Program conducted by the Division of Water Quality (DWQ). House Bill 1257 was passed by the 2001 General Assembly and requires DWQ to train and certify personnel of the Divisions of Forest Resources and Water Quality as well as local delegated programs. Although NCDOT is not one of the selected program, some of our staff participated in the training. Identification of surface waters subject to buffer rules enacted by the Environmental Management Commission were the focus of training. The most important decision relative to these rules is usually whether an intermittent or perennial stream is present on a site and the location of its origin.

As of now, the Neuse River Basin, Tar-Pamlico River Basin, mainstem of the Catawba River, and drainages into the proposed Randleman reservoir contain buffer rules. Any transportation project that falls in one of these watersheds must comply with the buffer rules. Since NCDOT staff cannot be certified through the SWITC Program, DWQ staff has the final "call" on which streams fall under the buffer rules. Waters in the aforementioned basins that require buffers include: intermittent and perennial streams, lakes, ponds, and estuarine waters that are shown on the most recent version of either a county soil survey map prepared by the Natural Resources Conservation Service or a 1:24,000 scale topographic map prepared by the U.S. Geologic Survey, and that exist on the ground. To protect a buffer means that the first 30 feet (Zone 1) of the buffer is to remain essentially undisturbed and the landward 20 feet (Zone 2) is to be vegetated, but certain uses would be allowed in this zone. Buffer mitigation is required when a road crossing of a waterbody impacts over 150 feet of the buffer, or if a crossing impacts greater than one-third of an acre of buffer.

The course provided the participants with the scientific knowledge to make decisions in a consistent and accurate manner. NCDOT field staff will have the skills to work with projects located in and around possible buffer zones, having a better idea of how a DWQ "call" will be made.

## **NC DOT Wetland Mitigation Bank**

By: LeiLani Paugh, Environmental Specialist  
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Vast expanses of wetland forests, black bears, alligators, and eagles were common place when colonists first landed over 400 years ago in what is now North Carolina. The settlers disappeared, becoming known as the lost colony. All that was found of the colony, the word, "Croatan", was carved into a tree. In the 21st century, things are quite different. It's hard to get lost driving US 70 with a cell phone in one hand and navigation system in the other, but the evolution of knee drivers has come at a cost, and too often, it has been to the expense of the environment.

The environmental laws of the recent decades are designed to prevent further degradation. Unavoidable impacts to the environment



must be compensated. The NCDOT, in its support of a transportation infrastructure has a present need, and foresees a future need for compensatory mitigation in Eastern North Carolina. In a proactive measure, the DOT has set up a wetland mitigation bank. Although its namesake is the adjacent National Forest, Croatan is an ironically appropriate name for saving a lost resource.

The Croatan Wetland Mitigation Bank (CWMB) was located and developed in the process of studying the Havelock bypass R-1015, in Craven County. The site is approximately 4,035 acres of contiguous land, with US Forest Service lands bordering the North and West portions, Long Lake bordering the south side, and a single landowner completing the border.

The Croatan site has seen heavy degradation of its natural plant communities over the last several decades. Roads and ditching have altered natural hydrologic patterns across the site. The area was actively managed for timber production and

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recreational hunting for nearly 50 known years prior to NCDOT's purchase. In this time most of the desirable hardwood species were removed. Succession, opportunistic hardwoods such as sweetgum and red maple have overtaken natural stands of bald cypress, swamp tupelo, and Atlantic white cedar. A hunting lodge, sheds, and dog pens remain from the hunters. Through all the alterations, the site contains some areas with characteristics of natural communities. Some wetland forest types remain. There are signs of hydric soils. Wetland hydrology is present. All indicate that usability for wetland restoration is possible.

A wetland mitigation plan has been developed. In order to assist in a return of site hydrology to a more natural condition, sections of the existing road and ditch network will require removal or modifications. NCDOT coordinated with the N.C. Division of Forest Resources to evaluate a selective clearing and planting regiment across the tract. The plan for vegetative restoration within the CWMB is based on a landscape approach and generally follows that of the Croatan national forestlands.

Other natural communities present on the CWMB will be preserved. Natural lake shoreline will be preserved to protect potential bald eagle roosting and foraging habitat. Contiguous corridors will benefit black bear habitat, and alligators can thrive in the lakes and ponds.

Approximately 1531 acres are capable of becoming restored wetlands and 2075 acres of the 2391

acres of existing jurisdictional wetlands are expected to be enhanced. Thirty-eight acres of riverine wetlands and



361 acres of nonriverine wetlands are considered preservation. With the mitigation plan implemented, the site is expected to yield 2499 non-riverine and 103 riverine wetland credits using standard ratios.

NCDOT will remain responsible for the CWMB during site implementation and monitoring. The USFS will be the ultimate recipient of the CWMB for inclusion and management as part of the Croatan National Forest. The site will contain a variety of wetland types, from frequently flooded riverine wetlands to seasonally saturated nonriverine wetlands. Wetland types acceptable for debiting at the CWMB will include most non-tidal, freshwater wetland types commonly encountered within the lower Coastal Plain of North Carolina. The mitigation credits will be used for unavoidable in-kind wetland losses associated with projects in the CWMB service area. The Lost Colony may be forever a mystery, but if all goes as planned the Croatan Wetland Mitigation Bank will be forever restored.

### **NCDOT Helps "Land" Bird Island**

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The North Carolina Department of Transportation recently contributed \$700,000 to the N. C. Department of Environment and Natural Resources, Division of Coastal Management, toward the purchase of 67 upland acres of Bird Island. This undeveloped island is near Sunset Beach in Brunswick County, North Carolina. It includes 1.2 miles of ocean shoreline and 1.5 miles of shoreline along the Intracoastal Waterway. This acquisition completed a two-phase development that began with the purchase of 80 upland acres late last year.

The 147 upland acres will be combined with tidal marsh and wetlands already held in public trust to form a 1,200-acre coastal reserve. The island will

become the 10<sup>th</sup> component of the N. C. Coastal Reserve Program, which was established by the General Assembly in 1989 to preserve natural areas for education, research and recreation.

NCDOT's contribution of funds toward the purchase of Bird Island is another prime example of this agency's commitment to share responsibility for protecting natural resources in North Carolina. Actions of this type also help our agency build trust with the public and with regulators and hence process faster decisions and achieves streamlining in our transportation program. Total price of the island was \$4.2 million. To pay for it, the State Division of Coastal Management used grants of \$2.75 million from the N. C. Clean Water Management Trust Fund and \$750,000 from the N. C. Natural Heritage Trust Fund, as well as the \$700,000 contribution from NCDOT.



## On-site Stream Relocation and Enhancement Associated With I-85 Improvements in Durham County

By: Christopher A. Murray, Division 5 Environmental Officer  
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*DEO Prospective: Featuring an article from a Division Environmental Officer.*

*This quarter's segment is brought to us by Division 5, located in the Piedmont Region of the State.*



The NCDOT in Division 5 is widening I-85 from a four-lane divided highway to an eight-lane facility in Durham County. Section DB of this project, which is currently under construction, is in an urbanized portion of the city of Durham. Ellerbee Creek, South Ellerbee Creek and tributaries to South Ellerbee Creek are located within the construction limits of Section DB. Partially due to their location in an urbanized setting, these streams are degraded as large amounts of trash and several point sources of unknown origin are evident. Additionally, the creeks are deeply incised and rarely overflow into the adjacent terrace except for significant storm events. Active streambank erosion is common along the streams in Section DB.

The construction of Section DB impacts 3,933 linear feet of Ellerbee Creek, South Ellerbee Creek and tributaries to South Ellerbee Creek. To offset impacts to the streams, the NCDOT is relocating and enhancing 2,684 linear feet of Ellerbee Creek and South Ellerbee Creek. The location of the streams within the construction corridor and the urbanized setting of the project limit the type of natural channel design that can be incorporated within the relocated channel at the project. The main emphasis of the natural channel design is to create stable streams and increase overbank flooding into areas of created floodplain. Rock vanes and cross vanes are in-stream structures that are currently being installed within the relocated channel. These structures provide grade control and streambank protection by directing the deepest part of the channel away from the streambank and

towards the center of the channel. Construction of Section DB commenced in April 2001. North State Environmental, Inc., a sub-contractor specializing in stream and wetland restoration, is installing the rock vanes and cross vanes in the relocated channel.

This widening of I-85 through Durham is a high profile project, which has drawn attention from local newspapers and *The Friends of South Ellerbee Creek*, a group of local citizens dedicated to conserving this waterbody. The correct installation of in-stream devices is a critical portion of the stream enhancement effort. Buck Engineering is providing technical assistance during the installation of the in-stream structures. This engineering firm will coordinate through the Division Environmental Officer to provide a review of the stream relocation design, attend pre-dig meetings, provide on-site technical construction assistance/inspection and provide on-site training of NCDOT staff. Buck Engineering has provided the following services for the project since August 2001:

- Conducted a site visit to examine project objectives and construction limitations.
- Met with NCDOT Hydraulics Unit to discuss hydraulic concerns and design objectives.
- Provided general recommendations to NCDOT Division 5 personnel on the construction of the in-stream structures including right-of-way access limitations.
- Provided technical guidance to the sub-contractor concerning the specific location and installation of rock vanes and cross vanes
- Inspection of installed rock vane and cross vane structures.
- Presented a workshop on natural channel design and installation of in-stream structures to NCDOT Division 5 personnel, prime contractor and sub-contractors.

The construction of the relocated channel, including in-stream structures, will continue throughout 2004. To date, a total of 10 in-stream structures have been installed at the project. This coordinated effort will ensure a better overall project that will meet the design objectives as well as successfully enhance portions of Ellerbee Creek and South Ellerbee Creek within the project limits.



## A Programmatic Approach to Endangered Species Act Section 7 Consultation: What Can We Gain?

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What do we mean when we say a “Programmatic Approach to Section 7 Consultation”? Section 7 of the Endangered Species Act requires that Federal agencies conserve listed species and consult with the U.S. Fish and Wildlife Service (Service) to insure that any actions they authorize, fund, or carry out do not jeopardize the continued existence of listed species or destroy or adversely modify critical habitat. When consultation is conducted at a programmatic level, many similar projects are assessed for affects to federally listed species in a similar geographic or ecological context for a given time frame. For example, an analysis of all bridge replacements planned over the next 5 years in a sub-basin where Appalachian elktoe occurs. This broad, collaborative approach provides many benefits to rare species, their habitats, and the consulting Agencies.

The Service and the NCDOT work together in an interdisciplinary team to develop strategies to ensure listed species conservation and recovery efforts in a particular geographic area within the context of the DOT’s future activities. The mutual benefits of a programmatic approach to consultation are numerous. Through these early, coordinated reviews, we can have fewer environmental conflicts, better species protection, better decision documents, reduced costs, greater predictability and certainty for all parties, and reduced time to implement needed transportation projects. The key steps in this collaborative process are summarized in the following:

1. Identify likely future needs of the DOT (*e.g.*, general location of future projects, types of future projects, time lines for completion of projects, *etc.*);
2. Identify listed and proposed species and critical habitat likely to be impacted;
3. Identify existing information sources such as published recovery plans, biological studies, and biological opinions conducted within the geographic area to help establish range-wide status of the species;
4. Develop general strategies for addressing species conservation needs;
5. Identify direct, indirect, and cumulative effects

and interdependent and interrelated actions to be added to the environmental baseline;

6. Develop avoidance and minimization procedures, such as seasonal restrictions or erosion control measures, to remove or reduce the risk of direct impacts to listed and proposed species and their critical habitat;

7. Group actions according to how they are likely to affect protected species: “No effect”, “Not likely to adversely affect”, or “May affect/likely to adversely affect”;

8. Develop methods to offset impacts to listed species and their critical habitat;

9. If appropriate, determine limits on levels of allowable impact, numbers of individuals of a listed species that may be taken, and amounts of habitats that may be affected or destroyed for a specified interval (*e.g.*, seasonally, annually, biennially, *etc.*); a limit may be set for the lifetime of the programmatic biological opinion on the amount of take for a particular species or the amount of affected or destroyed (and/or adversely modified) habitat allowable; and,

10. Develop monitoring that will allow project actions (including the implementation of associated conservation actions) to be tracked and allow detection of adverse effects, level of incidental take, and effectiveness of avoidance/minimization measures and conservation measures.

Through programmatic consultation we can streamline project review. It can efficiently assess and track impacts and expedites projects with few or no impacts so that the bulk of the effort can be spent on projects with greater impacts. Because a programmatic consultation is the result of close collaboration, this broad approach also should allow for multiple methods of achieving a desired conservation result. With careful monitoring, solutions can be evaluated and improved, ultimately resulting in better protection of rare resources while improving our transportation infrastructure. (Adapted from USFWS Guidance for Department of Transportation Programmatic Consultation)

## Endemic Sedge Added to Protected Species List

By: Karen M. Lynch, Environmental Specialist  
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Grasses, sedges and rushes comprise that herbaceous group of plants that many biologists would prefer not to delve into. Sedges are placed in the family, Cyperaceae and are frequently remembered by the phrase, "Sedges have edges" referring to their triangular stems, which contain edges when rolled between the fingers. This characteristic of triangular stems (or edges) help to distinguish the majority of sedges from grasses and rushes, which have round stems.

The U.S. Fish and Wildlife Service recently listed a newly discovered sedge, *Carex lutea* or golden sedge (January 23, 2002) as Endangered. Golden sedge was first observed by Richard LeBlond, a botanist with the Natural Heritage Program, in 1990 while he was conducting a floristic inventory of Lanier Quarry property, a Nature Conservancy preserve in Pender County. When a mature specimen of this plant was collected the following year, LeBlond knew he had a significant find when the sedge would not fit any of the botanical keys. Subsequent to this discovery, LeBlond and others found several other populations of this plant while combing its specific habitat. As far as sedges go, this plant is a strikingly beautiful one. The fruits of this sedge are a stunning yellow-gold when mature, hence the specific epithet, *lutea*, which translates to "yellow-gold".

Golden sedge typically contains two to four flowering spikes. The beaks of the female fruit (or perigynia) are pointed in diverse directions (as illustrated in figure) with the uppermost pointing up, middle beaks pointing to the side and lowermost pointing downwards. The leaf below the female fruit is also strongly reflexed or downward pointing. Fruits begin to develop in early April; mature in mid-May and drop by the end of June, restricting endangered species searches to this time period. Without the fruits present, leaves of *Carex lutea* are indistinguishable from many other sedges.

This rare endemic plant occurs only in NC and all eight populations discovered thus far reside within a 12-mile area in Onslow and Pender Counties. This plant is found in areas where long leaf pine savannas grade into wet hardwood forests. These areas are somewhat shady to open with a dense herb layer. The typically acidic soils are comprised of sandy or peaty loam substrate with a

higher than expected pH as these soils are underlain by a coquina limestone or marl formation. Soils remain wet to saturated in the spring. This habitat type is quite rare, therefore plants such as golden sedge that require this specific habitat are rare.

Golden sedge is found with an interesting assemblage of plants, including another endangered species. Plant associates (those most frequently found growing together) with golden sedge include Cooley's meadowrue (*Thalictrum cooleyi*), also federally endangered, and an unnamed species of onion (*Allium* sp.), colic root (*Aletris farinosa*), pond cypress (*Taxodium ascendens*), tulip poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*) and wax myrtle (*Myrica cerifera*).

Fire suppression leading to shrub overgrowth and habitat destruction from utility maintenance, roadwork and development are potential threats to this very rare species. Of the eight known populations, five are fully or partially protected and three populations occur on private land. NCDOT owns one of these sites, Haws Run Mitigation Site, that will be protected in perpetuity. Careful measures to protect this species - including winter mowing, refraining from using herbicides along utility right-of-ways and preservation of known populations within this rare habitat type, will go a long way in protecting this unique plant.



**Golden sedge**

(*Carex lutea*)

plant is actually much taller than depicted, (up to 3 ft.) hence the 'break' in the drawing



## Functional Assessment of Wetlands Workshop

By: Locke Milholland, Environmental Specialist  
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For four days in May, twenty-five staff members of the Office of Natural Environment attended a functional assessment of wetlands workshop held at the Clarion Hotel in Raleigh, NC. The workshop was sponsored by the Federal Highway Administration to educate and train environmental professionals in methods of assessing wetland functional value.

The workshop was conducted by Dr. Paul Garret, Senior Ecologist with FHWA and Brian Smith, also from FHWA. The first day consisted of a historical background of wetlands regulatory history. The following days involved hands on training and discussion of functional assessment methods. Field trips to local mitigation sites were conducted. One trip to Dutchman's Creek (a local NCDOT wetland site being used for mitigation on the R-2000 Raleigh Outer-Loop) involved data

collection to assess the site's value for three functions (nutrient cycling, elements/compounds, and wildlife habitat). Number crunching and follow up discussions took place in the classroom.

For purposes of complying with Section 404 of the Clean Water Act, functional assessment of wetlands can be defined as determining the impacts of discharge or placement of fill or dredged material on natural and cultural functions. Values associated with wetland ecosystems and habitats identified as waters of the United States are also determined. The process involves, assigning some measure of value relative to the objectives of the Clean Water Act. By assigning a functional value to an impacted wetland, an equal or higher valued wetland can be provided for the impacts. The functional assessment method can be a tool that provides a cost effective and scientific method for evaluating a wetland.

Opinions differ as to which wetland functions are most important, even within the ranks of DOT. Workshops such as this provide our staff the opportunity to learn and apply innovative wetland evaluation methods.



### Hats Off to Phillip Todd

Congratulations 2002 Graduate. Phillip Todd, Environmental Specialist, has been attending night classes since the Fall of 1997, where he pursued his Master's Degree in Public Administration from NC State University. Phillip graduated in May. Congratulations in your recent accomplishment.



### Hats Off to Randy Griffin

Congratulations on your recent Promotion! Randy Griffin has been selected as the Mitigation Monitoring Team Unit Head. Randy has previously served a key role in the mitigation monitoring, design, and construction oversight areas prior to this appointment. Please join us in congratulating Randy as he transitions in to this new Unit Head position.

### Hats Off to Chris Rivenbark



Chris Rivenbark, Environmental Specialist, has been a certified as "Firefighter Level II" by the NC Department of Insurance, Office of State Fire Marshall. As a volunteer of the Wake-New Hope Fire Department, Chris has obtained several certifications in the fire service. In doing so, he has earned his Department's annual training award for both 2000 and 2001.

### Hats Off to Phil Harris

Phil Harris, Permit & Mitigation Tracking Engineer, recently was married to Jennifer Harrison on April 6, 2002. Congratulations Phil and Jennifer! We wish you both much happiness together.



### Hats Off to Beth Harmon



Congratulations Beth and Kurt! Information Processing Assistant, Beth Harmon and her husband, Kurt, have a new addition to their family. Beth gave birth to a baby boy, Justin Edwin, on May 25, 2002. We wish them much happiness.



## **Project Spotlight**

### **STUMPY POINT BAY EMERGENCY FERRY TERMINAL**

By: Charles Cox P.E.

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What result do you get when you add some barrier islands, thousands of tourists, a storm, and a bridge placed out of commission? You get the challenges that the NC Ferry Division considers each hurricane season. The Barrier Islands, more commonly known as the Outer Banks, are one of the more popular attractions for North Carolinians and those outside the state. And the most popular time to visit these islands is during the summer, which is also part of the hurricane season. The Outer Banks can only be reached by either bridges or ferries. Several events in the last few years have rendered parts of the Outer Banks difficult to access due to bridge damage and highway washouts. These critical events have hastened the Ferry Division's need to add emergency landings on the islands and the mainland to aid in the evacuation of people off the islands in the event of bridge collapses or roadway closures.

The Ferry Division, Hydraulics Unit, Division 1, and the Office of Natural Environment have worked together to complete the latest of the "emergency" ferry landings, this one in Stumpy Point Bay on the mainland in Dare County. This project will connect with another emergency landing at the village of Rodanthe, on Hatteras Island. What makes this project unique is the short time frame for project approval from the environmental agencies. With the help of both federal and state agencies, the Office of Natural Environment (with the help of a private consultant) was able to complete the necessary environmental compliance documents, a permit application, and a mitigation plan, and have construction underway, all within 2 months!

The project consists of upgrading a secondary road, a new driveway/landing area for vehicles, a bulkhead system, a docking area for the ferry, and a new dredged channel, which connects to the existing federal channel in the bay. Part of the project's mitigation will involve working with the Division of Marine Fisheries to create oyster bed habitat.

With the impending hurricane season and a spring construction moratorium in the Stumpy Point Bay, the "open window" to complete the project this year became extremely short.

Although the project initially appeared to be small in scope, several sensitive environmental issues arose that challenged the schedule,



including: essential fish habitat, oyster bed habitat considerations, dredging considerations, and a special use permit for disposal of dredged material on federal lands. Daily communications between the PDEA Project Engineer and these agencies were necessary – thanks to modern technology for fax machines and e-mails to keeping the process going quickly!

Because the agency representatives all understood the critical need for this project to be constructed prior to the construction moratorium, these individuals worked against the clock to be certain that the improvements would have minimum affect on the local environment, that the project was in compliance, and meet the required schedule.

With the help of both State and Federal agencies, the Office of Natural Environment and its consultant, Rummel, Kleeper, & Kahl was able to complete the necessary environmental compliance documents, a permit application, and a mitigation plan, and have construction underway, all within 2 months!

The agencies involved heavily in the process included: N. C. Division of Coastal Management, Division of Water Quality, Division of Marine Fisheries, Wildlife Resources Commission, N.C. Department of Cultural Resources, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Alligator River National Wildlife Refuge, and the National Marine Fisheries Service. This was a wonderful example of cooperation between agencies. NCDOT wishes to thank these agencies for their hard work to complete this project.

## New Merger01 Concurrence Points 4B and 4C

By: David Chang, Ph.D., PE, Assistant State Hydraulics Engineer, Highway Design Branch  
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*Invited Article: Featuring Articles from Other Units that Relate to Natural Systems.*

In May of 2001 representatives of the North Carolina Department of Transportation (NCDOT), US Army Corps of Engineers (USACE), and the North Carolina Department of Environmental and Natural Resources (NCDENR), and other agencies attended a "Permit Process Improvement" workshop to explore a new resolution on the permit review process. They have collaboratively crafted the Merger 01 process to replace the current Merger 404/EPA process. In the new Merger 01 process, after the corridor has been determined (concurrence point 3), a TIP project enters the process of avoidance and minimization, Concurrence Point 4, which is divided into three parts: 4A, 4B, and 4C. 4A is to review the horizontal and vertical alignments of roadway; 4B is to review the conceptual design of the projects surface drainage when the hydraulic design is about 30% complete; 4C is to review the surface drainage design and permit drawings when the hydraulic design is 100% complete.

The Concurrence Point 4B meeting includes representatives from the USACE, NCDENR, NC Wildlife Resource Commission, US Fish and Wildlife Service, NC Division of Coastal Management, National Marine Fisheries Service, DOT Hydraulics, Roadway Design Services, and PDEA staff. In the 4B meeting the Hydraulic Engineers will present the permitting agency staff with conceptual design plans, on which are shown the proposed structural and non-structural best management practices, storm drain pipes, structures, ditches, etc. All environmentally sensitive areas, such as wetlands, jurisdictional streams, endangered species, high quality resources, buffer streams, and etc. will be reviewed in the meeting. Within the following week of the meeting, a Hydraulics' Project Engineer will develop and distribute the meetings minutes to the agencies for verification. The Hydraulics' Design Engineers will complete the hydraulic design plans and draft permit drawings.

A Concurrence Point 4C meeting is held when the hydraulic design is completed and draft permit drawings are developed. In the meeting the Hydraulics Design Engineer will first review the Stormwater Management Plan (SMP). A SMP is a narrative, project specific stormwater design report, which includes project involvement, river basins, classifications of involved water bodies, selected structural and non-structural BMPs and major stream-crossing structures. All of the areas of environmental concerns that are new or were discussed earlier in the 4B meeting, will be reviewed again with more detailed design information and recommendations. The Hydraulics' Design Engineers then will present copies of permit drawings to the agencies, walk them through permit drawing sheets and address any questions they may have.

If the proposed hydraulic designs are not acceptable to the agencies, the Design Engineers and agency staff shall develop a "plan of action", so those issues will further be investigated and discussed.

The Hydraulics' Design Engineers will also prepare the draft meeting minutes including agencies' comments and agreed "plan of action". Within the following week of the meeting the draft minutes will be distributed to the agencies for their review and comments. The agency staff shall review and respond to the draft minutes within two weeks. The Hydraulics' Project Engineers then will finalize the meeting minutes and conclude the 4C process. The Hydraulics' Design Engineers will send the revised permit drawings along with the SMP and final meeting minutes to the PDEA Permit Specialists for their use in preparing the permit application package.

## DETOURS

**Can you identify this person?**

**Is it.....**

- A. An overzealous environmental activist attending a "Save the Duck" campaign rally.
- B. A football fanatic attending the Rose Bowl to watch their beloved Oregon Ducks, otherwise known as the "Quack Attack", roll to a bowl victory.
- C. A NCDOT employee enjoying another opportunity to discuss the Merger 01 process with a group of engineers, planners, and regulatory agency officials.
- D. A waitress at a Chinese restaurant explaining the menu for the evening with special emphasis on the Peking Duck entrée.
- E. A New York model showcasing the latest "Duck-Head" sportswear.
- F. A worker at the North Carolina State Fair attempting to advertise the best game at the fair. "Everybody is a winner.....give me a dollar and you get to pick the lucky yellow duck.....if you get the right number you will get a stuffed animal...."



## Employee Spotlights

Ed Lewis is an Engineer with the Office of Natural Environment. He graduated from North Carolina State University with a Bachelors of Science degree in Civil Engineering. Ed worked for a number of years as a surveyor and inspector for the private engineering firm, Moore Gardener and Associates. Ed started his NCDOT career in the Traffic Engineering Branch in 1985 and a year later joined the Project Development and Environmental Analysis Branch as an Engineering Tech II. His early duties included assisting planning engineers in the preparation of planning and environmental documents, developing personal computer applications for the branch, training staff in the use of computers and mainframes, and serving as the computer troubleshooter.

**Ed Lewis**



In 1989, he worked on a temporary basis with FEMA as a State representative on a Disaster Survey Team in the aftermath of Hurricane Hugo. In 1990 Ed went to work as a Planning Engineer for the Bridge Replacement Unit, and in 1992 moved to the Rural Project Planning Unit. In 1998, Ed joined the Office of Natural Environment. In this unit, Ed's duties include reviewing stream and wetland mitigation plans and implementing stream and wetland construction projects. Ed has had the opportunity to provide the NEPA planning document, obtain the Section 404/401 permits, and provide mitigation for the proposed Crescent Road project in Kinston.

Ed is no stranger to uncommon achievements, having won two awards (the Ralph W. Ketner Award and the Employee Suggestion Award) for ideas for improving government operations.

Ed lives near Level Cross, in Randolph County, with his wife Teresa and son David. He is active in his church, he takes a week off each summer to work as a counselor at a youth camp, and he enjoys tutoring high school students. He enjoys basketball, golf, and working with consultants, contractors, and NCDOT Division staff on stream restoration projects.

**April Helms**



April Helms is an Environmental Specialist with the Office of Natural Environment. She is originally from Bassett, Virginia. April attended Ferrum College located in the Blue Ridge Mountains of Virginia. She graduated in 2000 with a Bachelors of Science degree in Environmental Science.

After graduation She came to the Raleigh Durham area and worked with an environmental consultant. The firm specialized in industrial compliance with respect to air quality issues. April worked with emissions standards and air quality control.

April joined the Office of Natural Environment working with the Monitoring Team, headed by Randy Griffin. She works with downloaded well data gathered by Geotech, preparing the data for statistical analysis, and formulating information for the monitoring reports. She is also called on to assist in field operations, providing invaluable experience, and broader knowledge of the NCDOT's processes.

April now makes her home in Raleigh with her two cats, Bailey and Zoe. Her second home is the local gym. She loves to exercise. She enjoys many outdoor activities such as tennis and running. Her many hours in the gym are a relief from the long days in the office, and keep her well prepared for long hours in the field.

## Recent Staff Additions

*The Office of Natural Environment would like to welcome it's new employees.*



"John Alderman"



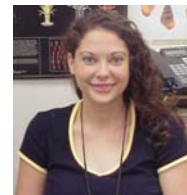
"Jamie Lancaster, PE"



"Michael Turchy"



"Tom Dickinson"



"Ashley Oliver"



"Tim Howell"



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### Our Mission Statement

Each of the teams in the Office of Natural Environment is responsible for natural resource investigations, obtaining environmental permits, developing wetland and stream mitigation plans, and implementing the construction of mitigation sites.

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